IN THE SPECIFICATION:

Please amend the paragraph beginning on page 1, line 5, as follows:

--This application claims the benefit under 35 U.S.C. §120 as a continuation of U.S. Non-provisional Application Serial No. 09/716,819, filed November 20, 2000, entitled "Systems and Methods for Generating and Modulating Illumination Conditions," which in turn claims priority to each of the following U.S. Provisional Applications:

Serial No. 60/166,533, filed November 18, 1999, entitled "Designing Lights with LED Spectrum;"

Serial No. 60/201,140, filed May 2, 2000, entitled "Systems and Methods for Modulating Illumination Conditions;" and

Serial No. 60/235,678, filed September 27, 2000, entitled "Ultraviolet Light Emitting Diode Device."

Each of the above references is hereby incorporated herein by reference.

This application also claims the benefit under 35 U.S.C. §120 as a continuation-in-part of U.S. Non-provisional Application Serial No. 09/213,581, filed December 17, 1998, entitled "Kinetic Illumination Systems and Methods," which in turn claims priority to the following U.S. Provisional Applications:

Serial No. 60/071,281, filed December 17, 1997, entitled "Digitally Controlled Light Emitting Diodes Systems and Methods;"

Serial No. 60/068,792, filed December 24, 1997, entitled "Multi-Color Intelligent Lighting;"

Serial No. 60/078,861, filed March 20, 1998, entitled "Digital Lighting Systems;"

Serial No. 60/079,285, filed March 25, 1998, entitled "System and Method for Controlled Illumination;" and

Serial No. 60/090,920, filed June 26, 1998, entitled "Methods for Software Driven Generation of Multiple Simultaneous High Speed Pulse Width Modulated Signals."--

Please amend the paragraph beginning on page 15, line 12, as follows:

--The collection of illumination sources (320) is controlled by the processor (316) to produce controlled illumination. In particular, the processor (316) controls the intensity of different color individual LEDs in the array of LEDs so as to control the collection of illumination sources (320) to produce illumination in any color within a range bounded by the spectra of the individual LEDs and any filters or other spectrum-altering devices associated therewith. Instantaneous changes in color, strobing and other effects, can also be produced with lighting fixtures such as the ~~light module~~ lighting fixture (300) depicted in FIG. 2. The lighting fixture (300) may be configured to receive power and data from an external source in one embodiment of the invention, the receipt of such data being over data line (330) and power over power line (340). The lighting fixture (300), through the processor (316), may be made to provide the various functions ascribed to the various embodiments of the invention disclosed herein. In another embodiment, the processor (316) may be replaced by hard wiring or another type of control whereby the lighting fixture (300) produces only a single color of light.--

Please amend the paragraphs beginning on page 17, line 3, as follows:

--FIG. 4 shows an exploded view of one embodiment of a lighting fixture of the present invention. The depicted embodiment comprises a substantially cylindrical body section (362), a lighting ~~fixture~~ module (364), a conductive sleeve (368), a power module (372), a second conductive sleeve (374), and an enclosure plate (378). It is to be assumed here that the lighting ~~fixture~~ module (364) and the power module (372) contain the electrical structure and software of lighting fixture (300), a different power module and lighting fixture (300) as known to the art, or as described in United States Patent Application Ser. No. 09/215,624, the entire disclosure of which is herein incorporated by reference. Screws

(382), (384), (386), (388) allow the entire apparatus to be mechanically connected. Body section (362), conductive sleeves (368) and (374) and enclosure plate (378) are preferably made from a material that conducts heat, such as aluminum.

Body section (362) has an emission end (361), a reflective interior portion (not shown) and an illumination end (363). Lighting module (364) is mechanically affixed to said illumination end (363). Said emission end (361) may be open, or, in one embodiment may have affixed thereto a filter (391). Filter (391) may be a clear filter, a diffusing filter, a colored filter, or any other type of filter known to the art. In one embodiment, the filter will be permanently attached to the body section (362), but in other embodiments, the filter could be removably attached. In a still further embodiment, the filter (391) need not be attached to the emission end (361) of body portion (362) but may be inserted anywhere in the direction of light emission from the lighting ~~fixture~~ module (364).

Lighting ~~fixture~~ module (364) may be disk-shaped with two sides. The illumination side (not shown) comprises a plurality of component light sources which produce a predetermined selection of different spectrums of light. The connection side may hold an electrical connector male pin assembly (392). Both the illumination side and the connection side can be coated with aluminum surfaces to better allow the conduction of heat outward from the plurality of component light sources to the body section (362). Likewise, power module (372) is generally disk shaped and may have every available surface covered with aluminum for the same reason. Power module (372) has a connection side holding an electrical connector female pin assembly (394) adapted to fit the pins from assembly (392). Power module (372) has a power terminal side holding a terminal (398) for connection to a source of power such as an AC or DC electrical source. Any standard AC or DC jack may be used, as appropriate.

Interposed between lighting ~~fixture~~ module (364) and power module (372) is a conductive aluminum sleeve (368), which substantially encloses the space between modules (~~362~~ 364) and (372). As shown, a disk-shaped enclosure plate (378) and screws (382), (384), (386) and (388) can seal all of the components together, and conductive sleeve (374) is thus

interposed between enclosure plate (378) and power module (372). Alternatively, a method of connection other than screws (382), (384), (386), and (388) may be used to seal the structure together. Once sealed together as a unit, the lighting fixture (362) may be connected to a data network as described above and may be mounted in any convenient manner to illuminate an area.--

Please amend the paragraph beginning on page 23, line 23, as follows:

--In another embodiment, an external calibration system may be used. One layout of such a system is disclosed in FIG 7. Here the calibration system includes a lighting fixture (2010) that is connected to a processor (2020) and which receives input from a light sensor or transducer (2034). The processor (2020) may be processor (316) or may be an additional or alternative processor. The sensor (2034) measures color characteristics, and optionally brightness, of the light output by the lighting fixture (2010) and/or the ambient light, and the processor (2020) varies the output of the lighting fixture (2010). Between these two devices modulating the brightness or color of the output and measuring the brightness and color of the output, the lighting fixture can be calibrated where the relative settings of the component illumination sources (or processor (2020) settings ~~(2020)~~) are directly related to the output of the fixture (2010) (the light sensor (2034) settings). Since the sensor (2034) can detect the net spectrum produced by the lighting fixture, it can be used to provide a direct mapping by relating the output of the lighting fixture to the settings of the component LEDs.--

Please amend the paragraph beginning on page 27, line 13, as follows:

--In certain embodiments, the lighting fixture (2010) may be used as the sole light source, while in other embodiments, such as is depicted in FIG 8b, the lighting fixture (2010) may be used in combination with a second source of light (2040), such as an

incandescent, fluorescent, halogen, or other LED sources or component light sources (including those with and without control), lights that are controlled with pulse width modulation, sunlight, moonlight, candlelight, etc. This use can be to supplement the output of the second source. For example, a fluorescent light emitting illumination weak in red portions of the spectrum may be supplemented with a lighting fixture emitting primarily red wavelengths to provide illumination conditions more closely resembling natural sunlight. Similarly, such a system may also be useful in outdoor image capture situations, because the color temperature of natural light varies as the position of the sun changes. A lighting fixture (2010) may be used in conjunction with a sensor (2034) as ~~controller~~ control system (2030) to compensate for changes in sunlight to maintain constant illumination conditions for the duration of a session.--

Please amend the paragraph beginning on page 42, line 4, as follows:

--FIG. 29 shows one embodiment of a lighting fixture according to this disclosure which could be used as a replacement fluorescent tube in a housing such as the one in FIG. 28. The lighting fixture may comprise, in one embodiment, a variation on the ~~fighting~~ lighting fixture (5000) in FIGS. 5a and 5b. The lighting fixture can comprise a bottom portion (1101) with a generally rounded underside (1103) and a generally flat connection surface (1105). The lighting fixture also comprises a top portion (1111) with a generally rounded upper portion (1113) and a generally flat connection surface (1115). The top portion (1111) will generally be comprised of a translucent, transparent, or similar material allowing light transmission and may comprise a filter similar to filter (391). The flat connection surfaces (1105) and (1115) can be placed together to form a generally cylindrical lighting fixture and can be attached by any method known in the art. Between top portion (1111) and bottom portion (1101) is a lighting fixture (1150) which comprises a generally rectangular mounting (1153) and a strip of at least one component illumination source such as an LED (1155). This construction is by no means necessary and the lighting fixture need

not have a housing with it or could have a housing of any type known in the art. Although a single strip is shown, one of skill in the art would understand that multiple strips, or other patterns of arrangement of the illumination sources, could be used. The strips generally have the component LEDs in a sequence that separates the colors of LEDs if there are multiple colors of LEDs but such an arrangement is not required. The lighting fixture will generally have lamp connectors (2504) for connecting the lighting fixture to the existing lamp couplers (2408) (e.g., as shown in FIG. 28). The LED system may also include a control circuit (2510). This circuit may convert the ballast voltage into D.C. for the LED operation. The control circuit (2510) may control the LEDs (1155) with constant D.C. voltage or control circuit (2510) may generate control signals to operate the LEDs. In a preferred embodiment, the control circuit (2510) would include a processor for generating pulse width modulated control signals, or other similar control signals, for the LEDs.--